

Name: _____

Date: _____

A2CC: Sample Proportions – Homework

1. Suppose that the percent of seniors in high school that own a cell phone is 82%. If a random sample of 50 high school seniors was taken, determine the following:
 - a. the probability that at least 47 seniors in the sample own a cell phone.

 - b. the probability that the sample proportion will be within 3% of the population parameter.

2. Let's say that 47% of the public will vote for a particular candidate in the upcoming election. If a newspaper takes a random poll of 200 voters, what is the probability that this sample will have a proportion larger than 50%, thus predicting a win for this candidate?

3. In general, as sample size increases, the range in the distribution of sample proportions
 - (1) increases
 - (2) stays the same
 - (3) decreases
 - (4) could increase or decrease

4. In a population with a proportion $p = 0.35$, if samples of size 30 were repeatedly taken, then we would expect approximately 90% of those samples proportions to fall within which of the following ranges?
- (1) 0.28 to 0.42 (3) 0.21 to 0.49
- (2) 0.18 to 0.54 (4) 0.31 to 0.39
5. At a certain high school, records showed that 50% of the students bought lunch in the cafeteria. Recently, in a random sample of 120 students, only 51 students buy lunch from the cafeteria. Is this enough evidence to indicate that percent of students buying lunch has dropped? Justify your answer.
6. 75% of juniors at a high school own internet enabled devices. If 31 out of 52 sampled freshmen owned internet enabled devices, is this enough proof to state that freshmen own these devices at a lower rate than juniors? Justify your answer.